

Serial No.: 09/684,763

- 2 -

Art Unit: 2663

REMARKS

Claims 1-92 were previously pending in this application, with claims 1, 17, 35, 49, 65, 81, and 82 being independent claims. To further the prosecution of this application, Applicant respectfully submits the following remarks.

Allowable Subject Matter

Paragraph 8 of the Office Action indicates that claims 17-48 and 65-92 are allowable.

Further, Paragraph 9 of the Office Action indicates that claims 2, 3, 7, 16, 51, 59 and 64 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicant maintains that these claims are allowable for at least the same reasons as the independent claims from which they depend as further outlined below.

Rejections Under 35 U.S.C. §102

Claims 1, 5, 6, 9, 10, 15, 49, 50, 53, 64, 60, 62, and 63 were rejected under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent No. 6,229,812 to Parruck, et al. (hereinafter "Parruck"). Applicant respectfully traverses this rejection.

Parruck is directed to methods for scheduling cells that are output on an output path of a data switch (abstract). The data switch is configured for switching the cells from a plurality of input paths to an output path (abstract). The switch includes a number of queues, each queue having an assigned weight, and respective ones of the input paths being coupled to respective ones of the queues. The system also provides a plurality of queues of queues (abstract, column 4, lines 22-23). The plurality of queues are coupled to a plurality of queues of queues with the queues of the plurality of queues having a similar weight being coupled to the same queue of queues of the plurality of queues of queues (column 4, lines 23-25).

As shown in Figure 4, an ATM switch having multiple levels of queue structures is shown. More particularly, switch 400 includes a plurality of buffer structures for allowing backpressuring to be accomplished on a per-VC basis (column 8, lines 39-44). Per-VC backpressuring is accomplished being via a provision of switch access port (SAP) structures, which include another plurality of buffering structures for buffering incoming ATM cells if the buffer

743243.1

Serial No.: 09/684,763

- 3 -

Art Unit: 2663

structures 302(a)-(x) in switch element 301 are filled (column 8, lines 44-49). In Figure 4, ATM switch 400 includes a switch element 301 and incoming SAP structures 402 and 404.

Within SAP structure 402, there are shown a plurality of buffer structures 410(a)-410(q), each of which corresponds to a respective one of buffer structures 302(a)-302(q) of switch element 301 (column 8, lines 64-67). Routing elements couple buffer structures from elements 402, 404 to element 301 (column 9, lines 1-18).

Parruck buffers ATM cells corresponding to a connection at one of buffer structures 302(a)-(x) first (column 9, lines 19-21). When that buffer structure (one of buffer structures 302(a)-(x)) is filled, the connection is then back-pressured from switch matrix 301, and the excess ATM cells are then stored in a corresponding one of buffer structures 410(a)-(x). By way of example, ATM cells corresponding to the connection from traffic generator 306(a) is first buffered in buffer structure 302(a) within switch element 301. If buffer structure 302(a) becomes full, buffer 410(a) is then employed to store the excess ATM cells (column 9, lines 21-30).

Independent Claim 1

Independent claim 1 recites a packet-buffering system in a communication device for transferring packets received over a communications network from an input port to an output port of the communication device. The system comprises a first-level memory segmented into a plurality of first-level queues each having a first-buffer depth, the plurality of first-level queues receiving the packets from the input port of the communication device, and a second-level memory in communication with the first-level memory and the output port. The second-level memory is segmented into a plurality of second-level queues each having a second-buffer depth and being associated with the output port of the communication device, the plurality of second-level queues receiving packet data from at least one of the plurality of first-level queues and transferring the packet data to the output port, wherein a sum of the second-buffer depths exceeds a sum of the first-buffer depths.

Parruck does not anticipate claim 1 as recited. In particular, Parruck does not disclose first and second buffers "wherein a sum of the second-buffer depths exceeds a sum of the first-buffer depths," as recited in claim 1. Paragraph 2 of the Office Action indicates that Parruck teaches a sum of second-buffer depths that exceed a sum of first-buffer depths. More

743243.1

Serial No.: 09/684,763

- 4 -

Art Unit: 2663

particularly, the Office Action alleges that the second buffer (element 301) comprises queues from 302(a) to 302(x) whereas the first buffer (element 402) comprises queues from 410(a) to 410(h). Applicant respectfully disagrees. Rather, Parruck indicates input and output buffers which correspond to an equal number of corresponding output buffers coupled through a routing fabric. According to Parruck, there is a one-to-one correspondence between buffer structures 302(a)-(x) and buffer structures 410(a)-(x) (please see column 9, lines 22-25). Further, Parruck does not provide any indication of the relative depth of first and second level buffer queues. Rather, Parruck indicates how input and output queues may be coupled to facilitate VC backpressuring. More particularly, Parruck is concerned with coupling, in a one-to-one manner, input queues to output queues to provide VC-level back-pressuring. For at least these reasons, Parruck does not anticipate claim 1 as Parruck does not disclose first and second buffers "wherein a sum of the second-buffer depths exceeds a sum of the first-buffer depths," as recited in claim 1.

Claims 2-16 depend from claim 1 and are allowable for at least the same reasons.

Independent Claim 49

Independent claim 49 is directed to a method of buffering packets in a communication device. The method comprises steps of receiving the packets at an input port of the communication device, providing first-level queues associated with the input port and having a first-buffer depth, the first-level queues receiving the packets from the input port, and selecting an output port of the communication device as a destination for the received packets. The method further comprises providing second-level queues associated with the selected output port and corresponding to the first-level queues, the second-level queues having a second-buffer depth exceeding the first-buffer depth of the first-level queues, transferring the received packets from the first-level queues to corresponding second-level queues, and transmitting the transferred packets in the second-level queues to the selected output port.

Parruck does not anticipate claim 49, as Parruck does not disclose "providing second-level queues associated with the selected output port and corresponding to the first-level queues, the second-level queues having a second-buffer depth exceeding the first-buffer depth of the first-level queues," as recited in claim 49. As discussed above with reference to independent claim 1, Parruck does not disclose a second-buffer depth that exceeds a sum of first-buffer depths. Rather, Parruck is concerned with coupling, in a one-to-one manner, input queues to

743243.1

Serial No.: 09/684,763

- 5 -

Art Unit: 2663

output queues to provide VC-level back-pressuring. Further, Parruck is not concerned with the relative buffer depths of first and second level buffers. For at least these reasons, Parruck does not anticipate claim 49. Claims 50-64 depend from claim 49 and are allowable for at least the same reasons.

Accordingly, withdrawal of this rejection is respectfully requested.

Rejections Under 35 U.S.C. §103

The Office Action rejected dependent claims 4 and 61 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,229,812 to Parruck, et al. in view of U.S. Publication No. 2002/0054568 to Hoogenboom, et al. Further, dependent claims 8, 13, 14, 52, 57 and 58 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,229,812 to Parruck, et al. in view of U.S. Patent No. 5,831,980 to Varma, et al. Also, dependent claims 11 and 55 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,229,812 to Parruck, et al. in view of U.S. Patent No. 6,333,917 to Lyon, et al. Lastly, dependent claims 12 and 56 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,229,812 to Parruck, et al. in view of U.S. Patent No. 6,643,260 to Kloth, et al. As discussed above with respect to the independent claims from which they depend, the above-mentioned dependent claims are allowable for at least the same reasons as the independent claims from which they depend. Further, the additional cited references do not provide the missing limitations as discussed above with respect to the independent claims.

Accordingly, withdrawal of these rejections is respectfully requested.

743243.1

Serial No.: 09/684,763

- 6 -

Art Unit: 2663

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50/2762.

Respectfully submitted,
Leon K. Woo and Robert Ryan, Applicants

By 
Edward J. Russavage, Reg. No. 43,069
LOWRIE, LANDO & ANASTASI, LLP
One Main Street
Cambridge, Massachusetts 02142
United States of America
Telephone: 617-395-7000
Facsimile: 617-395-7070

Docket No.: E2003-700110

Date: June 23, 2004

743243.1